



COMP 90048

Declarative Programming

Workshop 1 (week2)

2019 semester 1

by Wendy Zeng

Tutorial : Tue 18:15 - 19:15 221 Bouverie St, room B11:
— Wed 17:15 - 18:15 201 Bouverie St, room B132





Outline

1. Subject intro
2. DP - Why and What
3. DP - characteristics (side effects and purity)
4. Pattern Matching
5. List Operations



DP – Why and What





DP – Characteristics

- Higher Order Implementations
 - Higher order functions (from ws4)
- **Purity**
 - **No side effects** (modify global/static vars/args, I/O, exceptions)
- **Immutable data**
- **Referential Transparency**
- Lazy Evaluation (from ws 10)



Recursion & Pattern Matching

- Put it in a simple way:
 - **A function that calls itself**
 - `double (double (double (double 1)))`
 - `reduce (reduce (reduce (reduce())))`
- Base case
- Recursive case



Recursion & Pattern Matching

- More in workshop 3 & 4
- What:
 - **Matching values against patterns**
 - Or deconstructing a value into its components (later on)
 - **Order DOES** matter
- Why:
 - Recursive data structure -> recursive function pattern



List Operations

- List Patterns/Representations
- List Traversal
- Basic operations:
 - Head/Tail - Q5
 - Append (concatenation) - Q6
 - Reverse (efficiency?) - Q7
 - Length
 - Sum
 - Indexing - Q8



Thank you

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